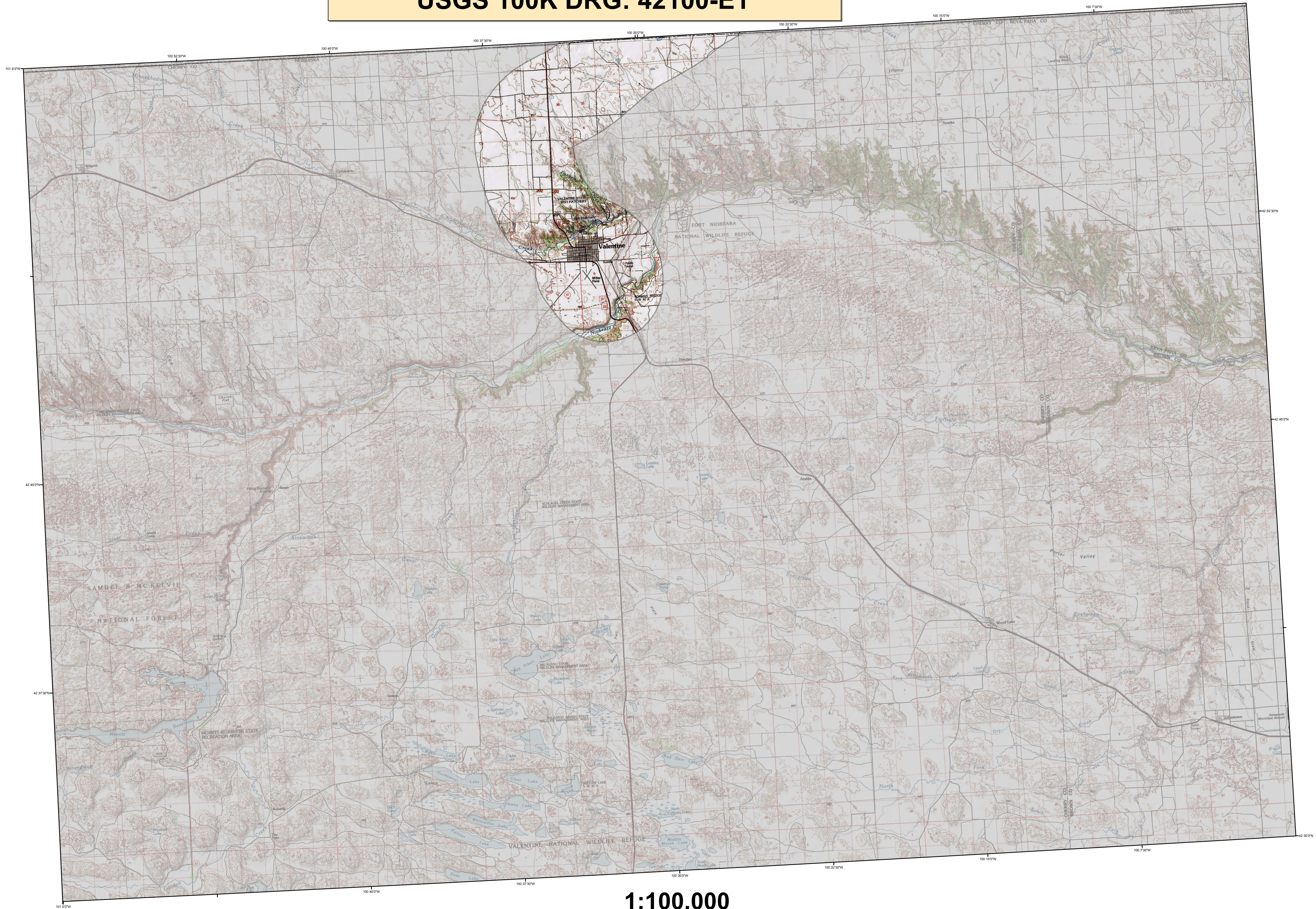


2006 Aerial Insect and Disease Survey

Valentine, Nebraska

USGS 100K DRG: 42100-E1



1:100,000

Legend

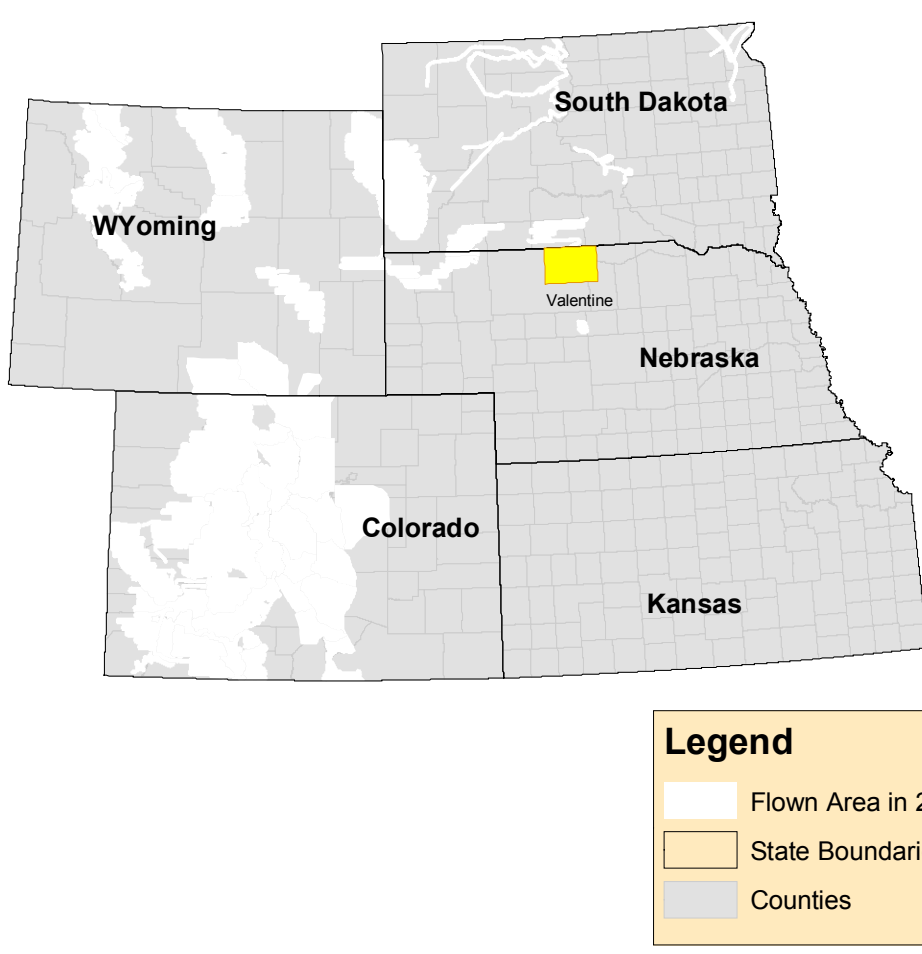
Causal Agent(s) Not Flown in 2006

Use of the Number System

Example: 5-25 = The first number before the dash is the causal agent code. The number after the dash is the number of dead "fader" trees in the polygon or point. When recent dead trees are not counted, an intensity code of L=light, M=moderate, and H=high may be used after the causal agent code. Periodically, trees per acreage estimates are used after the causal agent code instead of number of dead "fader" trees (or an intensity code). For example: 5-120A = The first number before the dash is the causal agent code. The number after the dash is an estimation of the number of dead "fader" trees in the polygon per acre. In this case it would be an estimation that, on the average, one tree per every two acres would be a dead "fader" tree. In another example: 5-3A = that on the average, an estimated three trees per acre are dead "fader" trees. A "1" is used as a separator when a point/polygon has more than one causal agent code.

Code	Causal Agent	Primary Host	Code	Causal Agent	Primary Host	Code	Causal Agent	Primary Host
1	Douglas-fir beetle	Douglas-fir	49	Aspen	Lodgepole Pine	108	ten spruce flagging	Cottonwood/Poplar
2	Engelmann Spruce Beetle	Engelmann Spruce	50	White pine blister rust	Lodgepole Pine	107	fall webworm	Cottonwood/Poplar
3	Mountain pine beetle	Ponderosa Pine	51	Dwarf mistletoe	Softwoods	109	road salt	Softwoods
4	Mountain pine beetle	Lodgepole Pine	52	Echinodermata	Ponderosa Pine	110	pinecone nematode	Softwoods
5	Mountain pine beetle	Lodgepole Pine	53	Insects #05, 06 & 08	All Tree Species	111	oak wilt	Oak
6	Mountain pine beetle	Lodgepole Pine	54	Air pollutants	All Tree Species	112	foliage disease	All Tree Species
7	Mountain pine beetle	Lodgepole Pine	55	Chemical damage	All Tree Species	113	spice ips	White Spruce
8	Western pine beetle	Ponderosa Pine	56	Lophodermium pinastri	Softwoods	114	twined chestnut borer	Bur Oak
9	Fire Engraver	White Fir	57	Rhabdocline pseudotsugae	Douglas-fir	115	anthracnose like foliar disease	All Tree Species
10	Douglas-fir engraver beetle	Douglas-fir	58	Lophodermium arcuta	Softwoods	116	Mortality	All Tree Species
11	Western balsam bark beetle	Subsistence Fir	59	Lecanospira aculeata	Softwoods	117	Flagging	All Tree Species
12	Unidentified bark beetle	Lodgepole Pine	60	Lophodermium concolor	Softwoods	118	Discoloration	All Tree Species
13	Pine engraver	Lodgepole Pine	61	Cochitoma pin	Softwoods	119	Herbicide	All Tree Species
14	Pine engraver	Ponderosa Pine	62	Needle cast (hypodermataceae)	Softwoods	120	Quaking Aspen	Quaking Aspen
15	Phoradendron pine needle miner	Lodgepole Pine	63	Root Rot	All Tree Species	121	Quaking Aspen	Quaking Aspen
16	Phoradendron pine needle miner	Ponderosa Pine	64	Unidentified disease	Softwoods	122	Marssonina blight	Marssonina blight
17	Jack pine budworm	Jack Pine	65	Winter damage light	All Tree Species	123	Dieback (ash)	Ash
18	Spine budworm, light defol.	Douglas-fir	66	Winter damage medium	All Tree Species	124	Dieback (cottonwood)	Cottonwood/Poplar
19	Spine budworm, medium defol.	Douglas-fir	67	Winter damage heavy	All Tree Species	200	Dieback (hardwood)	Hardwoods
20	Spine budworm, heavy defol.	Douglas-fir	68	Diplota	Softwoods	204	Dieback (oak)	Oak
21	Douglas-fir tussock moth	Douglas-fir	69	Pinyon bark stain	Common Pinyon	210	Mortality (oak cottonwood)	Cottonwood/Poplar
22	Pine butterfly	Ponderosa Pine	70	Fire	All Tree Species	211	Mortality (eastern cedar)	Eastern Red Cedar
23	Pine looper	Ponderosa Pine	71	Parasitism	Softwoods	212	Mortality (hardwood)	Hardwoods
24	Pine tortrix	Ponderosa Pine	72	Windthrow	All Tree Species	213	Mortality (oak)	Oak
25	Leaf miner	Hardwoods	73	Aspen decline-multiple agent(s)	All Tree Species	214	Mortality (spruce)	Spruce
26	Leaf beetles	Hardwoods	74	Aspen decline-multiple agent(s)	All Tree Species	220	Discoloration (ash)	Ash
27	Oak leaf roller	Hardwoods	75	Unidentified defolator	All Tree Species	221	Discoloration (cottonwood)	Cottonwood/Poplar
28	Pine needle-shaft miner	Ponderosa Pine	76	Juniper mortality-unknown agent(s)	Juniper	222	Discoloration (eastern cedar)	Eastern Red Cedar
29	Pine sawfly	Ponderosa Pine	77	Juniper mortality-unknown agent(s)	Juniper	223	Discoloration (hardwood)	Hardwoods
30	Pine tussock moth	Ponderosa Pine	78	Limber pine decline-multiple agent(s)	Limber Pine	224	Discoloration (oak)	Oak
31	Cankerworms	Hardwoods	79	Limber pine decline-multiple agent(s)	Limber Pine	225	Discoloration (spruce)	Spruce
32	Variable oak leaf caterpillar	All Tree Species	80	Hail damage	All Tree Species	230	Herbicide (cottonwood)	Cottonwood/Poplar
33	Unidentified defolator	All Tree Species	81	Unknown	Unknown	231	Herbicide (eastern cedar)	Eastern Red Cedar
34	Heterobasidion annosum (Fomes annosus)	Softwoods	82	Unknown	Unknown	240	Flagging (hardwood)	Hardwoods
35	Amelara oilstayer (Amelara melaleuca)	Softwoods	83	Unknown	Unknown	250	Unidentified defolator (cottonwood)	Cottonwood/Poplar
36	Polyphorus schweinitzi	Softwoods	84	Unknown	Unknown	251	Unidentified defolator (oak)	Oak
37	Phomopsis	Softwoods	85	Unknown	Unknown	252	Unidentified defolator (hardwood)	Hardwoods
38	Cytospora	All Tree Species	86	Unknown	Unknown	300	Mortality (pine)	Pine
39	Western gall rust	Unknown	87	Unknown	Unknown			
40	Comandra rust	Unknown	88	Unknown	Unknown			
41	Stellatormia rust	Lodgepole Pine	89	Unknown	Unknown			

USGS 100K Quad - Location Map



How Aerial Surveys are Conducted

Data represented on this map are based on aerial observations manually recorded onto a map. This procedure is considered both an art form and a form of scientific data collection, and is highly subjective. An observer only has a few seconds to recognize the color difference between healthy and damaged trees of different species; diagnose causal agents correctly; estimate intensity; delineate the extent of damage; and precisely record this information on a georeferenced map. Air turbulence, cloud shadows, distance from aircraft, haze, smoke, and observer experience can all affect the quality of the survey. These data summaries provide an estimate of conditions on the ground and may differ from estimates derived by other methods.

Aerial surveys provide information on the current status for many causal agents, and are important when examining insect activity trends by comparing historical and current survey data over large areas.

Overview surveys are a snap shot in time and therefore may not be timed to accurately capture the true extent or severity of a particular disturbance activity. Aerial surveys can be thought of as the first stage in a multi-stage sampling design. Other remote sensing approaches, including aerial photography, electro-optical sensors, and specially designed aerial surveys with modified flight patterns, can be used to more accurately delineate the extent and severity of a particular disturbance agent. The preceding methods are often more costly than overview surveys, and are generally reserved to address situations of sufficient environmental, economic, or political importance.

Area surveyed by Bill Schaupp & Al Dymerski 07/12/2006

Map Created: 01/17/2007

Projection: UTM NAD83 Zone 13

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Due to the nature of aerial surveys, the data on this map will only provide rough estimates of location, intensity and the resulting trend information for agents detectable from the air. Many of the most destructive diseases are not represented on this map because these agents are not detectable from aerial surveys. The data presented on this map should only be used as a partial indicator of insect and disease activity, and should be validated on the ground for actual location and causal agent. Shaded areas show locations where tree mortality or defoliation were apparent from the air. Intensity of damage is variable and not all trees in shaded areas are dead or defoliated.

The insect and disease data represented on this map are available digitally from the USDA Forest Service, Region Two Forest Health Management group. The cooperators reserve the right to correct, update, modify or replace GIS products. Using this map for purposes other than those for which it was intended may yield inaccurate or misleading results.

A data dictionary and digital copies of this map and the insect and disease data are available at: <http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/>